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"The End of Pollution": An Artistic Critique and Ethical Reflection on Pollution Control Technologies

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Abstract

With the accelerating pace of industrialization, environmental pollution has become increasingly prominent, particularly in the textile and garment industry, where organic dyes, heavy metals, and chemical auxiliaries generated during the dyeing process constitute major sources of water contamination. This study focuses on the environmental impact of wastewater from garment dyeing and examines a remediation approach that utilizes agricultural residues—such as rice straw—to produce activated carbon for pollutant adsorption, as well as the inherent paradoxes embedded within such a method. While activated carbon can effectively reduce pollutant concentrations in wastewater, the technique itself harbors an implicit issue of "pollution transfer." Against this backdrop, the eco-installation artwork *The End of Pollution* materializes the ethical deficiencies of this remediation technology, rendering visible the complex ethical paradoxes in pollution control. The work employs a tripartite structure to probe the intrinsic connections among ecological crisis, technological concealment, and industrial logic, with the aim of provoking critical reflection on environmental technologies and the true efficacy of remediation practices.

Keywords

Pollution Transfer, Environmental Installation Art, Technological Critique, Systemic Responsibility, Ecological Ethics

1. Introduction

According to the *United Nations Environment Programme* (UNEP) 2023 report, the fashion and textile industry consumes approximately 215 trillion liters of water annually—equivalent to 86 million Olympic-sized swimming pools (Retrieved

from https://www.unep.org/technical-highlight/sustainable-fashion-take-centre-stage-zero-waste-day?utm_source). Simultaneously, the sector discharges vast quantities of highly concentrated dye effluents. Many synthetic dyes exhibit high chemical stability and biological recalcitrance, enabling them to persist and accumulate in aquatic environments, thereby causing long-term ecological degradation. In developing countries, in particular, numerous dyeing facilities are situated in regions characterized by dense water networks and weak regulatory oversight, where effluents are often discharged directly into rivers or farmland without adequate treatment, leading to eutrophication, groundwater contamination, and heavy metal accumulation in crops (Periyasamy, 2024; Dhaif Allah et al., 2025). The *China Ecological Environment Statistical Yearbook* (2023) reports that the textile industry accounts for 17.8% of the total chemical oxygen demand (COD) emissions from all industrial sectors—the highest among all industries. As one of the world's major garment manufacturing hubs and a concentrated center of textile dyeing, Guangdong Province faces acute challenges in pollution control. The treatment of dyeing wastewater has become a critical obstacle in the province's industrial transformation, rural land remediation, and regional ecological coordination.

To address this issue, technical solutions such as activated carbon adsorption have been proposed. During discussions with family members involved in agriculture, the author learned that "rice straw" is a common agricultural waste. As Guangdong is a major rice-producing province, the volume of rice straw is substantial. This prompted the author to explore the concept of "waste-to-treat-waste," using rice straw as a precursor for activated carbon production via a gas activation method to treat dye wastewater. We prepared a 50 mg/L wastewater solution using methylene blue, a commonly used dye, to test the adsorption capacity of the activated carbon. Experimental results revealed that activated carbon derived from rice straw had a better adsorption effect on wastewater than commonly used commercial activated carbon (**Figure 1**). This finding suggests that the "waste-to-treat-waste" approach is feasible. However, upon further investigation, it was discovered that the activated carbon, after adsorbing pollutants from wastewater, is typically disposed of through methods such as burial. While such methods can effectively reduce pollutant concentrations in wastewater, they are inherently constrained by the paradox of "pollution transfer." Specifically, pollutants are not eliminated but rather translocated from water to solid waste, thereby generating new environmental risks. In contemporary society, the "solution" to problems often becomes the central objective. In the environmental field, there is a constant drive to "optimize" materials, processes, and devices to reduce pollution and delay ecological collapse. However, such optimization often results in the relocation of pollution rather than its true elimination—an apparent advance that obscures the persistence of the underlying issue. For example, although the textile dyeing industry appears to have treated its wastewater, dyes and heavy metals continue to accumulate in less visible forms and locations.

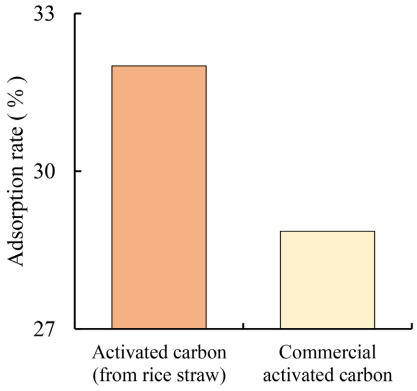

Figure 1. The activated carbon prepared from rice straw has a better adsorption effect than commercial activated carbon.

In the field of ecological criticism, Timothy Morton, a leading theorist in contemporary ecological art discourse, has introduced the concept of the "hyperobject"—entities that are massively distributed across time and space, resistant to complete perception, yet omnipresent. Pollution is a paradigmatic hyperobject: we cannot observe it in its totality, but only apprehend its threat through indirect material, spatial, and affective encounters (Morton, 2013, 2011). From this perspective, art's role is not to pursue functionality but to engage in *exposure*—exposing the visual logic of pollution, the ethical absences of technology, and the structures of responsibility in which viewers are implicated. In his theory of *relational aesthetics*, Nicolas Bourriaud argues that art should generate "micro-spaces of interaction" that foster social exchange and shared experience, rather than exist as isolated, self-contained expressions.

Within this conceptual and empirical framework, our installation *The End of Pollution* functions both as a situated response to ecological crisis and as a critical interrogation of the governance logics and technological overconfidence that shape contemporary remediation practices. Through artistic strategies, the work traces the material trajectories of pollutants and their conceptual transformations, prompting the public to reconsider whether pollution is ever truly eradicated. Structurally, the work unfolds across three dimensions—material stratification, spatial configuration, and symbolic signification—to guide audience engagement. It reveals the migratory chain of pollution from land, to technology, to industry, to consumption, while ethically foregrounding the erosion of accountability, the occlusion of perception, and the complicities embedded in governance. As an installation, it operates as a form of *public witnessing*, seeking to move environmental discourse beyond technical remediation toward deeper social, philosophical, and participatory inquiry.

2. Structure and Corresponding Analysis of the Art Installation

2.1. Structure of the Art Installation

The art installation *The End of Pollution* (**Figure 2**) consists of three main com-

ponents: the base, the top, and the support structure. The base symbolizes the entanglement of agriculture and industry, while the top, with its transparent cage and activated carbon, represents the transfer of pollutants. The support structure reflects the ecological crises brought about by industrialization. The entire installation explores the profound impact of pollution on the environment.

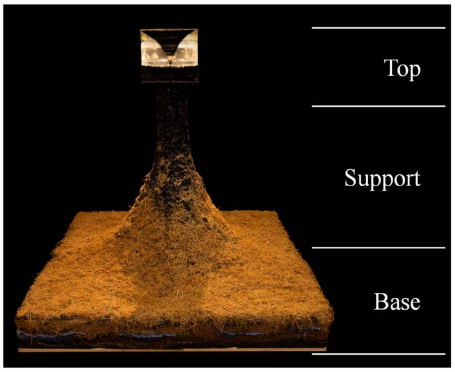

Figure 2. Overall structure of *The End of Pollution*.

Base (Scars of the Land)

The base is constructed from soil, straw, dyed fabric strips, and pollutant-laden activated carbon—its surface cracked and desolate, resembling an abandoned rice field (**Figure 3**). Streaks of color seep from the fissures, evoking a "pollution sediment landscape." The base symbolizes the entanglement of agricultural and industrial materials, while also mimicking the hidden flow of pollutants between the surface and subsurface. Fabric strips are interwoven through the cracks, hinting at the potential seepage of contaminants into groundwater—underscoring the complexity and invisibility of ecological disruption.

Figure 3. Detailed view of the base.

Top (Testimony of Confinement):

The top is a transparent plastic cage filled with activated carbon previously used for wastewater purification. Here, this material—originally intended as a medium

for purification—becomes a vessel for accumulated pollution (Figure 4). The cage serves not only as a visual container but also as an ethical device: it prompts the viewer to confront the concept of "displaced pollution" made tangible. This segment reveals the hidden cost of purification technologies and invites deeper reflection on their long-term effects and societal implications. The transparent section of the installation symbolizes the purified wastewater, while the black substance in the upper layer of the funnel represents clean activated carbon. As the adsorption process continues, the carbon gradually settles to the bottom. Despite being confined within the cage, the activated carbon spills beyond the confines of the structure, symbolizing the inescapable and unending spread of pollutants.

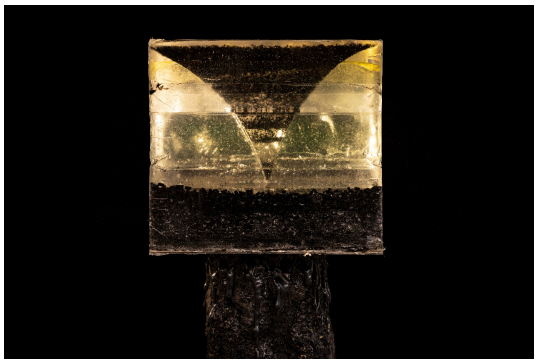

Figure 4. Detailed view of the top.

Support (Structure of Guilt):

The internal support frame is welded from discarded steel rebar (Figure 5, left), holding the top "cage" structure in an inclined position, suspended above the base. Activated carbon derived from rice straw is attached to the exterior of the support, symbolizing the industrial system's long-term perpetuation of the logic of pollution (Figure 5, right). Its top-heavy design makes the entire structure appear unstable both visually and physically. This symbolizes the fragile equilibrium of the current ecological system and the potential crises brought about by industrial logic. The instability of the support not only reflects the internal contradictions of industrial development, but also symbolizes the urgent challenges and deep-rooted crises confronting global environmental governance today.

Figure 5. Detailed view of the support.

2.2. Symbolic Significance-Material Dimension

In this installation, the selected materials not only serve as physical components that support the structure, but also carry profound symbolic significance and ethical reflection. Soil, as the bearing medium, symbolizes the heavy burden borne by the land, while also alluding to the natural environment as a victim. Straw, as an agricultural byproduct, represents the regenerative potential of resources and carries the hope of ecological restoration. Fabric strips, as industrial products, not only serve as reminders of human society's industrialization process, but also retain the memory of color, symbolizing the interweaving of culture and industry. Activated carbon, as a residue of technology, embodies the sense of impotence in technological efforts to address pollution, and also serves as material evidence of the history of contamination. These materials are meticulously assembled and constructed on a physical level, while undergoing an "identity transformation" on the symbolic and ethical levels—together forming a chain of material evidence that reveals an ecological reality obscured by the language of technology.

This "chain of material evidence" not only reconstructs the course of pollution but also discloses its historical background and systemic structure. The hiddenness of the basal soil reveals a reality in which the surface appears uncontaminated while what lies beneath is already deeply polluted; such concealment is one of pollution's defining characteristics. The mottled dyeing—the chromatic memory—on the fabric strips has not been removed; rather, it becomes more visible as the cracks are exposed, symbolizing that the history of pollution can never be fully washed clean. The fissuring of the soil is not merely a sign of death; it is an expression of resistance and struggle under ecological pressure. The black granules of activated carbon resemble time capsules, inscribing the history of pollution and the failures of human technology. These materials are not merely the building elements of the installation; they carry the power to tell their own stories. They serve as witnesses to ecological memory, indictments of those responsible for pollution, and rebuttals of the myth of technological salvation. We do not simply assign meanings to these materials but awaken their inherent historical and ethical tensions. They become points of departure for viewers' reflection and questioning, guiding people to re-examine their relationship with pollution and with the environment.

3. Environmental Narrative and Mechanisms of Viewing

3.1. From Sensory Complicity to Cognitive Paradox

This installation employs a mode of sensory complicity, inviting viewers into an experiential narrative structure woven from multiple elements—color, texture, weight, and sheen—guiding them into a systemic loop narrated by the materials themselves. It is not merely a visual field but an experiential narrative structure—just as Arnold Berleant, in his theory of the *aesthetics of engagement*, asserts, the viewer is not a detached spectator but a present participant entangled in spatial relations, material contexts, and ethical tensions (Berleant, 2013).

The transparent cage symbolizes "visible pollution"; its light appearance contrasts sharply with the heavy material within, placing the state of pollution in a dual suspension—both physical and moral. The triangular support structure, coupled with its top-heavy design, further reinforces this sense of "uncertainty." What the *Testimony of Confinement* contains is activated carbon from treated textile-dyeing wastewater. On the surface, it appears that technical remediation has resolved the problem, yet in reality, it is merely a medium for transferring pollutants. The pollutants continue to breach the confines of the cage, symbolizing that simple pollutant transfer holds no substantive meaning; the environment's carrying capacity is ultimately finite, and pollution will eventually return to nature in other forms.

Through the interplay of spatial hierarchies and sensory illusions, the installation reveals how pollution is "beautified" or "technologized" in the process of remediation, while its fundamental problems remain unaddressed. This phenomenon constitutes a form of "visual misdirection," in which the semblance of remediation supplants attention to the essential problems of pollution.

3.2. Ethical Triggers of Viewing

Building on this sensory-cognitive tension, future iterations of the installation will feature a QR code placed beside the work. This interactive element is set to be officially implemented in the upcoming solo exhibition. By scanning the QR code, viewers can access videos and photos documenting the entire process—beginning with the preparation of activated carbon, followed by its adsorption of wastewater, and culminating in the formation of the installation. This allows viewers to experience firsthand the entire pollution process—from its occurrence, transfer, to its eventual deposition—compelling them to become "witnesses" to this pollution chain. Here, art takes on the role of a testimonial system: it does not directly solve the problem but instead reveals the origins of pollution and its developmental trajectory.

This viewing mechanism serves a dual function: first, as a documentary tool, it reconstructs the specific operational chain of pollution transfer through images and textual records, enabling the technical process to be interpreted within a social context; second, as an ethical catalyst, it transforms "viewing" into "involvement," compelling viewers to shift from passive aesthetic recipients to implicated co-responsibles. From an aesthetic perspective, this interactive approach responds to Jacques Rancière's proposition in his theory of the "aesthetic regime of politics" (Rancière, 2000). Rancière contends that the true politics of art lies not in conveying ideology but in "redistributing the sensible"—changing who has the right to look and who is compelled to gaze.

Through the QR code mechanism, *The End of Pollution* reshapes the power structure of viewing—viewers are no longer detached onlookers, but subjects who must confront the mechanisms of pollution's production, technological dependence, and its hidden connections to personal consumption. Viewing thus becomes

a form of "cognitive exposure," while the installation functions as the structural medium that provokes this exposure.

4. Reflection and Extension

4.1. The Obscuring Function of Technology

We do not deny the effectiveness of activated carbon in certain contexts of environmental remediation—particularly in specific pollution-control scenarios, where it can indeed adsorb harmful substances from water. However, activated carbon should not be regarded as a "final solution," for it is only one link in the process of pollution remediation, and its limitations and hidden problems are often overlooked. The textile dyeing industry is a crucial pillar of Guangdong's traditional industries, contributing significantly to the local economy. However, it is also a potential source of water and soil pollution. In recent years, although techniques such as sludge solidification have effectively "eliminated" visible wastewater crises in the short term, these methods often transfer the pollution to solid waste landfills. Especially in the densely populated Pearl River Delta region, new environmental burdens are quietly created. When the logic of remediation degenerates into merely transferring pollution from one place to another, technology ceases to be a tool for resolution and instead becomes a mechanism that conceals the essence of pollution.

Such "transfer" not only fails to address the sources of pollution but also allows it to persist in different forms and settings—often returning to the ecosystem in another guise. Pollution remediation often entails a reconfiguration of pollution's form, and this very process exposes the limits of technology. Pollution shifts from overt wastewater and industrial refuse to invisible solid waste; contaminants move from flowing liquids to "products" encapsulated in solids; a publicly visible crisis becomes a phenomenon widely accepted as "normal." In fact, this transformation does not solve the problem of pollution; it merely removes its surface visibility without touching its underlying structural causes.

Through artistic means, the work presents pollution that remains despite superficial concealment, revealing the fundamental falsity and illusion built into pollution-control technologies. Pollution has not truly disappeared; it has only been relocated to a less conspicuous place. If remediation measures obscure rather than reveal the systemic causes of pollution, those measures themselves become part of the pollution cycle. Such obfuscation can be even more dangerous: it reshapes public perception, fostering the illusion that "technology will ultimately solve everything," and thereby diverts attention from the real scale of pollution and the shortcomings of remediation. When environmental solutions only cover up the symptoms without addressing the root causes, they risk becoming part of the pollution cycle themselves. Worse, this can reshape public perception, making people believe that "technology will take care of it for us."

The significance of this installation lies in breaking that illusion, compelling viewers to re-examine how we confront the remediation of pollution: has it truly

been resolved, or merely hidden—still persisting in another form?

4.2. Cracks in Ecological Responsibility

The fissures in the work—such as those along the central seam and at the base—are not merely physical forms; at a deeper level, they symbolize profound fractures within the ethical order. These cracks reveal a fractured ecological landscape, and at a deeper symbolic level, they point to society's collective evasion of responsibility across the chain of environmental governance. When confronting environmental pollution, the delineation of responsibility is often unclear: should the producer, the consumer, or the regulator bear responsibility? Within the modern industrial system, this question has long been blurred by mechanisms of power and market forces, with responsibility diluted into a complex array of economic, political, and social factors.

As a symbol, the fissure functions not only as a spatial divider but also as an allusion to the irreconcilable fault lines between knowledge, institutions, and power. The exposed fabric strips within the fissures serve as "visual evidence" left by industrial consumer society, pointing to hidden production histories and the externalized costs of the consumption chain.

Bruno Latour's Actor-Network Theory posits that society is formed not by single actors but by multiple, interwoven networks. Applied to pollution, this perspective shows that responsibility does not rest with any single person or company; rather, it is produced through the interaction of many forces. Governance policies, corporate interests, consumer habits, applied technologies, and even local cultures are all part of these "actors". Pollution is co-produced through their interplay. In the network of the textile industry, actors extend beyond production companies. They include multiple roles: chemical suppliers who provide dyes and auxiliaries, thus determining the chemical nature of pollutants; designers who influence consumer demand through fashion trends, indirectly amplifying production scales; consumers who continue purchasing within the global consumption chain, thereby sustaining the logic of pollution; and regulators, who shape the visibility and invisibility of pollution through policies, standards, and enforcement. It is through the collaboration of these diverse actors that pollution is co-produced and normalized. Thus, environmental responsibility is not a simple linear chain but a complex network shaped by multiple interacting forces. Every individual, institution, and choice is a part of this network.

Furthermore, the fissure as a symbolic structure reminds us that ecological responsibility cannot be imposed upon any single group through institutional or technological means alone; it requires an "ethics of shared responsibility." This accords with Hans Jonas's argument in *Technology and Responsibility: Reflections on the New Tasks of Ethics*: when our actions may affect the survival of future generations on Earth, the boundaries of ethical responsibility must accordingly expand (Jonas, 2014). Ecological ethics concerns not only what we can do now, but also what we are willing to bear for future others.

Through the fissure as a symbolic structure, *The End of Pollution* interweaves the paradoxes of pollution remediation, the fractures of responsibility, and the system's blind spots to construct a form of critical spatial rhetoric. It not only renders the fissures visible but also prompts reflection on why they exist and who survives within them. This compels us to reconsider, in this process of environmental governance, who can truly resolve the problem, who remains silent, and who evades responsibility.

4.3. Visual Impact and the Ethical Critique of Consumerism

The blue of the dyed fabric strips and the gray-brown of the soil reflect residual contamination within the ground, and, though the palette appears harmonious and beautiful on the surface, it exposes the unreality and latent dangers of pollution-control technologies. As viewers appreciate these colors, they may experience an affective unease: are they, in some measure, implicated in producing pollution? This is not merely an emotional response, but rather a provocation designed to trigger self-reflection, encouraging individuals to contemplate their behaviors, consumption habits, and their potential role in the pollution cycle through "visual stimulation." The "layering" in *The End of Pollution* constitutes an aesthetic trap, packaging the pollution behind industrial dyeing as a visual pleasure; by gazing at the cracks that seep through these strips, viewers begin to probe the logic of contemporary consumerism. Color is no longer a mere sensory stimulus; it becomes evidence left by the dyeing industry's disruption of ecological order. This presentation—beauty laced with toxicity—challenges the conventional aesthetic values of "harmony as goodness" and "order as justice," and forces recognition that the aesthetic experiences of consumer society are often built upon environmental destruction and resource waste.

As Theodor Adorno argues in *Aesthetic Theory*, genuine art, through negativity, "subverts the apparent rationality of reality," enabling the re-perception of concealed social contradictions (Adorno, 1997). The work's visual shock deliberately produces "visual discomfort" and "psychic dissonance," turning aesthetics into an occasion to critique consumer habits, production structures, and systemic complicity, so that through this inharmonious visual experience the piece prompts reflection on the tight coupling between consumerism, industrial production, and pollution remediation—and on the roles we play within it. This shock also responds to Hal Foster's critique of the "aestheticization of politics," which contends in *The Anti-Aesthetic* that when crisis is packaged as a consumable image, its destructiveness is converted into aesthetic taste (Foster, 1983). By contrast, *The End of Pollution* takes the opposite stance: it withholds pleasure and cultivates hesitation, guilt, and reflection. Accordingly, the work not only exposes consumerism's covert support of pollution's logic, but also compels viewers, in the very act of looking, to enter an ethical test of self-exposure. Here, aesthetics is no longer the terminus of perception but a trigger for thought—a medium that awakens the core question: "Where am I within the chain of pollution?"

5. Conclusion

Presented in an artistic form, *The End of Pollution* offers a profound reflection on the paradoxes inherent in pollution remediation technologies, particularly on the ethical dilemmas that arise when technology conceals rather than fundamentally resolves pollution. It highlights the paradoxes of remediation, the fractures in responsibility, and systemic blind spots. Through its visual structure, the work disrupts the narrow perception of "purification" and stimulates philosophical inquiry into the "end point" of pollution. This artistic critique does not outright reject technology, but rather warns against superficial "cleanliness" that merely shifts waste across different spaces or domains. In contrast, technological efforts aimed at waste regeneration or providing safe added value should be seen as encouraging directions. By constructing a cross-media, cross-system framework between art, technology, materials, and concepts, the work not only reshapes public understanding of technological ethics but also offers a practical model for how environmental art can engage deeply with the ecological crisis.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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